What is claimed is:

[Claim 1] 1. A polarimeter comprising:

a sequential arrangement of an LED light source, a first polarizer, a ¼ wave plate, and a second polarizer substantially aligned along a central axis;

the orientation of the first polarizer to the ¼ wave plate being fixed; and

the second polarizer being rotatable about the central axis.

[Claim 2] 2. The polarimeter of claim 1 wherein the LED light source has an emission maximum at a wavelength from about 510 nm to about 540 nm.

[Claim 3] 3. The polarimeter of claim 1 wherein the LED light source is comprised of multiple LEDs arranged to provide an even illumination field.

[Claim 4] 4. The polarimeter of claim 2 wherein the LED light source emits at 528 nm.

[Claim 5] 5. The polarimeter of claim 1 wherein the first polarizer comprises a polarizing film.

[Claim 6] 6. The polarimeter of claim 1 wherein the second polarizer and the ¼ wave plate are moveable along the central axis.

[Claim 7] 7. The polarimeter of claim 7 wherein the second polarizer has indicia for determining the degree of rotation.

[Claim 8] 8. The polarimeter of claim 5 wherein the polarizing film has an extinction ratio of about 10,000:1 or greater.

[Claim 9] 9. The polarimeter of claim 8 wherein the LED light source has an emission maximum at a wavelength from about 510 nm to about 540 nm.

[Claim 10] 10. The polarimeter of claim 9 wherein the LED light source is comprised of multiple LEDs arranged to provide an even illumination field.